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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,919	06/14/2002	Michael Panaccio	DAV1151.001APC	1078

7590 02/16/2005

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EXAMINER

BASKAR, PADMAVATHI

ART UNIT

PAPER NUMBER

1645

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/009,919

**Applicant(s)**

PANACCIO ET AL.

**Examiner**

Padmavathi v Baskar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 10, 11, 13, 14, 17-21, 23 and 27-48 is/are pending in the application.
- 4a) Of the above claim(s) 27-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 10, 11, 13, 14, 17-21, 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Q  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response***

1. Applicant's response filed on 1/10/05 is acknowledged.

***Status of claims***

2. Claims 5, 7-9, 12, 15, 16, 18, 22, 24-26 have been canceled.

Claims 1, 6, 10 and 21 have been amended.

Claims 1-4, 6, 10, 11, 13, 14, and 17-21 and 23 are under examination.

Claims 27-48 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions.

***Claim Rejection - 35 U.S. C. 112, first paragraph withdrawn***

3. In view of submission of affidavit of record (1/10/05), the rejection for Deposit without a promise for availability is withdrawn.

***Claim Rejections - 35 USC § 102 withdrawn***

4. In view of amendment to the claims and upon further consideration and review of the application, the rejection of claims 1-4, 6, 10, 11, and 17-21 under 35 U.S.C. 102(b) as being anticipated by McOrist et al, Infect Immun. 1989 is withdrawn.

***Claim Rejection - 35 U.S. C. 112, first paragraph maintained***

5. The written description rejection of claims 6, 17- 21 and 23 under U.S.C. 112, first paragraph is maintained as set forth in the previous office action.

The claims are now drawn to an isolated or recombinant immunogenic polypeptide comprising or consisting essentially of the amino acid sequence set forth in SEQ.ID.NO: 1 an isolated or recombinant immunogenic polypeptide comprising an amino acid sequence which has at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1, said isolated or recombinant polypeptide comprising an amino acid residues 1 to 50 of SEQ ID

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NO: 1 wherein said polypeptide elicits the production of antibodies against *Lawsonia* spp and a vaccine composition for the prophylaxis or treatment of infection of an animal by *Lawsonia* spp., said vaccine composition comprising an effective amount of an immunogenic component comprising an isolated or recombinant polypeptide having at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1 or at least about 50% sequence identity to amino acid residues 1 to 50 of SEQ ID NO: 1 and one or more carriers, diluents or adjuvants suitable for veterinary or pharmaceutical use.

The specification describes as part of the invention, an isolated or recombinant polypeptide comprising the amino acid sequence of SEQ ID NO: 1. The specification teaches that the full-length protein comprises 251 amino acids as set forth in SEQ.ID.NO: 1 and is useful in diagnosing infection caused by *Lawsonia intracellularis* in pigs. However, the immunological function of this isolated or recombinant immunogenic polypeptide in assessing *Lawsonia* infection has not yet been identified. Further, the specification does not disclose

- 1) An isolated or recombinant immunogenic polypeptide comprising 70% sequence identity to SEQ.ID.NO: 1,
- 2) Isolated or recombinant immunogenic polypeptide comprising 1 to 50 amino acids of SEQ.ID.NO: 1
- 3) Vaccine composition comprising an effective amount of an immunogenic component comprising an isolated or recombinant polypeptide having at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1 polypeptide or at least about 50% sequence identity to amino acid residues 1 to 50 of SEQ ID NO: 1 Therefore, said broadly claimed isolated or recombinant polypeptide do not meet the guidelines on written description.

The specification fails to disclose any substitution, insertion or deletion or change in (i) a SEQ.ID.NO: 1 to obtain a polypeptide having 70% or 50% identity to SEQ.ID.NO: 1 the specification does not describe any use of said variants as claimed (comprising, open language) in identifying *L.intracellularis* infection. None of the above broadly claimed polypeptides meet the written description provision of 35 U.S.C. 112, first paragraph. *Vas-Cath Inc. v. Mahurkar*, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that (he or she) invented what is claimed." (See *Vas-Cath* at page 1116).

Thus, the specification fails to teach the broadly claimed polypeptide and does not satisfy the written description guidelines because an isolated polypeptide comprising (open language) said polypeptide plus unlimited and unknown amino acids of SEQ.ID.NO: 1 and an isolated polypeptide comprising an amino acid sequence having 70% or 50% % sequence identity to SEQ.ID.NO: 1 plus unlimited and unknown amino acids would result in unknown polypeptide without sufficient structure and completely lacking identifying characteristics such as function. Thus, broadly claimed polypeptides are broader than SEQ.ID.NO: 1 and do not appear to have sufficient structural characterization and lack any identifying characteristics (function). Further, inducing an immune response is not an identifying characteristic (function) of a fragment because there are many fragments with the same function and are not distinguishable from each other. Thus polypeptide as claimed is uncharacterized by this specification and is not asserted to belong to any known family of proteins such as outer membrane proteins of *L.intracellularis*. The specification fails to teach the structure or relevant identifying

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characteristics sufficient to allow one skilled in the art to determine that the inventor had possession of the invention as claimed. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for making it. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC 1993) and *Amgen Inc V Chugai Pharmaceutical Co Ltd.*, 18 USPQ2d 1016. One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481, 1483. In *Fiddes v. Baird*, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class.

The actual biological function of isolated hemolysin polypeptide SEQ ID NO: 1 is not set forth in this specification. Applicants broadly describe the invention as embracing any deletion by use of language in which a specified percent of amino acids can be changed in the protein. USPQ2d 1111 makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that (he or she) invented what is claimed." (See Vas-Cath at page 1116).

The specification only discloses hemolysin polypeptide comprising the amino acid sequence SEQ ID NO: 1 encoded by the polynucleic acid sequence SEQ ID NO: 2. Thus, hemolysin comprising the amino acid sequence SEQ ID NO: 1 meet the written description provision of 35 U.S.C. 112, first paragraph for the reasons set forth below. The specification fails to teach the claimed variants and they do not exist as an invention independent of their function in encoding a protein. For example, if there is a well-established correlation between structure and function in the art, one skilled in the art will be able to reasonable predict the complete structure of the claimed invention from its function. This specification does not teach such polypeptides, and the art is devoid of such broadly claimed variants of SEQ ID NO: 1, with undetermined function. There is no written description support for variants as claimed.

6. The rejection of claims 6, 17- 21 and 23 under 35 U.S.C. 112, first paragraph while being enabling for an isolated or a recombinant immunogenic polypeptide comprising the amino acid sequence SEQ ID NO: 1 *L.intracellularis* hemolysin polypeptide or an immunogenic composition comprising the amino acids sequence SEQ ID NO: 1 of *L.intracellularis* hemolysin polypeptide and one or more carriers, diluents or adjuvants suitable for veterinary or pharmaceutical use does not reasonably provide enablement for an isolated or recombinant polypeptide having at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1 or at least about 50% sequence identity to the amino acid residues 1 to 50 of SEQ ID NO: 1 or a vaccine composition comprising said broadly claimed polypeptide is maintained as set forth in the previous Office action.

Claims have been discussed supra as above in Paragraph # 3.

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The specification fails to provide an enabling disclosure for the full scope of claimed polypeptide other than peptide SEQ.ID.NO: 1 itself because it fails to provide any guidance regarding how to make and use broadly polypeptides (any amino acid sequence selected from an amino acid sequence which has 70% or 50% sequence identity to SEQ.ID.NO: 1 etc). The instant claims are evaluated for enablement based on the Wands analysis. Many of the factors regarding undue experimentation have been summarized in *In re Wands*, 858 F.2d 731, 8 USPQ2d 1400 (Fed.Circ.1988) as follows:

(1) the nature of the invention, (2) the state of the prior art, (3) the predictability or lack thereof in the art, (4) the amount of direction or guidance present, (5) the presence or absence of working examples, (6) the quantity of experimentation necessary, (7) the relative skill of those in the art, and (8) the breadth of the claims.

The nature of the disclosed invention is preparing recombinant polypeptides

*L. intracellularis* only. The invention is drawn to an isolated protein as set forth in SEQ ID NO: 1 which is encoded by *L. intracellularis* polynucleotide, SEQ.ID.NO: 2 (pALK12, ATCC 207195). The specification also teaches that this full-length protein contains 251 amino acids. The specification discloses the claimed could be used to identify *L. intracellularis* infection and as an immunogen and formulating the compositions in Freund's adjuvant to immunize mice for preparing antibodies.

The state of the art in *L. intracellularis* is devoid of making or using broadly claimed ( fragments ) recombinant peptides. Moreover, protein chemistry is probably one of the most unpredictable areas of biotechnology and the art teaches that the significance of any particular amino acid sequences (i.e. fragments) for different aspects of biological activity cannot be predicted a priori and must be determined empirically on a case-by-case basis (Rudinger et al, in "PEPTIDE HORMONES", edited by Parsons, J.A., University Park Press, June 1976, page 6). The art specifically teaches that even a single amino acid change in a protein leads to unpredictable changes in the biological activity of the protein. For example, replacement of a single lysine residue at position 118 of the acidic fibroblast growth factor by glutamic acid led to a substantial loss of heparin binding, receptor binding, and biological-activity of the protein (Burgess et al., The Journal of Cell Biology, 111:2129-2138, 1990). In transforming growth factor alpha, replacement of aspartic acid at position 47 with alanine, or asparagine did not affect biological activity while replacement with serine or glutamic acid sharply reduced the biologic activity of the mitogen (Lazar et al., Molecular and Cellular Biology, 8(3): 1247-1252, 1988). These references demonstrate that even a single amino acid substitution or what appears to be an inconsequential chemical modification, will often dramatically affect the biological activity of a protein. Proteins with replacement of single amino acid residues may lead to both structural and functional changes in biological activity and immunological recognition. For example, Jobling et al. (Mol. Microbiol. 1991, 5(7): 1755-67 teaches a panel of single amino acid substitutions by oligonucleotide directed mutagenesis which produces proteins that differ in native conformation, immunological recognition, binding and toxicity, thus exemplifying the importance of structural components to both biological function and immunological recognition. Thus, it is apparent that change in a peptide can lead to loss of binding property of that peptide.

The specification provides no working examples demonstrating (i.e., guidance) enablement for an isolated polypeptide comprising a sequence having 70%, or 50% sequence identity to SEQ.ID.NO: 1 or an immunogenic fragment of a polypeptide comprising at least 1-50 amino acids of SEQ.ID.NO: 1, immunogenic composition comprising said variants of SEQ ID NO: 1. Furthermore, it is unclear whether isolated polypeptide comprising a sequence having 70%, or 50% sequence identity to SEQ.ID.NO: 1 or an immunogenic fragment of a comprising at least 1-50 amino acids of SEQ.ID.NO: 1 of can be used for identifying

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*L. intracellularis* infection. Thus, peptides comprising *L. intracellularis* must be considered highly unpredictable, requiring a specific demonstration of efficacy on a case-by-case basis.

With respect to vaccine composition, the specification provides no information on the protective immunogenicity of the claimed, fragments, the variants or the ability to protect the animal from disease. The specification fails to teach that the claimed or fragments or variants are capable of generating a humoral or cellular immune response. The specification also fails to teach that the immune/antibody response to the produced by the claimed alone or in combination with adjuvants or carriers provides protection against infection in any acceptable animal model. Vaccines by definition trigger an immunoprotective response in the host vaccinated and mere antigenic response is insufficient to provide for enablement of vaccines. This specification fails to teach protective immune response generated by said isolated polypeptide vaccine. It is well recognized in the vaccine art, that it is unclear whether an antigen(s) derived from a pathogen will elicit protective immunity. Ellis, R.W. (Chapter 29 of "VACCINES" [Plotkin, S.A. et al. (eds) published by W. B. Saunders company (Philadelphia) in 1988, especially page 571, 2nd full paragraph] exemplifies this problem in the recitation that "The key to the problem (of vaccine development) is the identification of that protein component of a virus or microbial pathogen that itself can elicit the production of protective antibodies.... and thus protect the host against attack by the pathogen". The specification fails to teach even one of the claimed polynucleotide encoding s or fragments thereof alone or in combination with other antigens does in fact confer protection from infection, as is requisite of a vaccine composition. The specification fails to teach that the claimed polynucleotide encoding a peptide or fragment thereof is able to perform as a vaccine (i.e. protection, reduction in morbidity and/or mortality of disease) and the art does not recognize other similar nucleic acids as operative vaccines. The courts have held that it is the specification, not the knowledge of one skilled in the art that must supply the novel aspects of an invention in order to constitute adequate enablement. (*Genentech Inc. v. Novo Nordisk A/S Ltd.*, 42 USPQ2d 1001). Moreover, the specification must have been enabling at the time the invention was made-and developments after the time of filing are of no consequence to what one skilled in the art would have believed at the time of filing (*In re Wright*, 27 USPQ2d 1510).

The state of the art indicates that very little is known about the humoral and, especially, cell-mediated immune response in pigs exposed to *Lawsonia intracellularis*. Pathogenesis of *L. intracellularis* has not been well investigated; however, organisms cultured in vitro have been used successfully to reproduce the disease in vivo. This bacterium has a tropism for intestinal epithelial cells, and the major pathological consequence of infection is hyperplasia of infected epithelial cells. The specific bacterial determinants, which confer pathogenicity and cause these distinctive pathological effects, are not known (see McCluskey et al, *Infect Immun* 2002 Jun; 70(6): 2899-907). Bacterial attachment and entry occur via the apical surface of immature epithelial cells in a process which appears to require a specific bacterial ligand-receptor interaction and once inside the cell, the bacteria escape from the vacuolar compartment into the cytoplasm, where they multiply and spread from cell to cell following cell division. At present, the determinants used by *L. intracellularis* to enter the cell, escape the vacuole, multiply intracytoplasmically, and modulate host cell function are not known. Therefore, the claimed outer-membrane protein induces an effective immune response such that it can be used, as a vaccine composition is not predictable in this underdeveloped art. The specification, however, provides no working examples demonstrating (i.e., guidance) enablement for any *in vivo* uses of the claimed protein.

In the absence of teachings that the claimed can generate a protective immune response, which is effective in preventing the infection or disease, the specification is not

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enabled for vaccines. In view of the unpredictability of the art, the lack of teachings of the specification, it would require undue experimentation on the part of the skilled artisan to practice the invention as claimed.

Applicants' arguments filed on 1/10/05 have been fully considered but they are not deemed to be persuasive.

Applicant states that in response to the office action, the presently pending claims have been amended to be specifically towards SEQ ID NO. 1. As a result of the amendment to the claims, the rejection should be withdrawn.

The examiner disagrees with the applicant because the claimed polypeptide is not limited to an isolated or recombinant polypeptide consisting of the amino acid sequence as set forth in the SEQ.ID.NO: 1. Therefore, the rejection still reads on the claimed polypeptide comprising an amino acid sequence which has at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1 and isolated polypeptide comprising an amino acid residues 1 to 50 of SEQ ID NO: 1 because the specification fails to disclose such broadly claimed polypeptides.

***New Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States

8. Claims 1-4, 6, 10, 11, 13, 14, 17-21 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by McOrist et al, Infect Immun. 1989 March; 57 (3): 957–962 as evidenced by



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McOrist et al 1995 Int J Syst Bacteriol. 1995 Oct; 45(4): 820-5.

The claims are now drawn to an isolated or recombinant immunogenic polypeptide comprising or consisting essentially of the amino acid sequence set forth in SEQ.ID.NO: 1 or an isolated or recombinant polypeptide which has at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1, said isolated or recombinant polypeptide comprising an amino acid residues 1 to 50 of SEQ ID NO: 1 wherein said polypeptide elicits the production of antibodies against *Lawsonia* spp and a vaccine composition for the prophylaxis or treatment of infection of an animal by *Lawsonia* spp., said vaccine composition comprising an effective amount of an immunogenic component comprising an isolated or recombinant polypeptide having at least about 70% sequence identity to the amino acid sequence set forth in SEQ ID NO: 1 or at least about 50% sequence identity to amino acid residues 1 to 50 of SEQ ID NO: 1 and one or more carriers, diluents or adjuvants suitable for veterinary or pharmaceutical use.

The examiner is viewing claims broadly because the transitional limitation "consisting essentially of " or "comprises" similar to the limitations, such as, "has", "includes," "contains," or "characterized by," represents open-ended claim language and therefore does not exclude additional, unrecited elements. See M.P.E.P 2111.03 [R-1]. See *Molecular Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986); *In re Baxter*, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts". On the other hand, the limitation "consisting of" represents closed claim language and excludes any element, step, or ingredient not specified in the claim. *In re Gray*, 53 F. 2d 520, 11 USPQ 255 (CCPA 1931); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948).

McOrist et al disclose an isolated protein profiles obtained with each *Campylobacter* species such as *C. mucosalis*, *C. hyointestinalis*, *C. jejuni*, *C. coli* and *Campylobacter*-like organism, also known as *Lawsonia intracellularis* (McOrist et al 1995). The prior art further identifies that the protein profile obtained from *Campylobacter*-like organism (see figure 1) was distinct and different from other species of *Campylobacter* such as *C. mucosalis*, *C.*

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*hyointestinalis*, *C. jejuni*, *C. coli*. This indicates that the intracellular Campylobacter-like organism (i.e., *L.intracellularis*) associated with proliferative enteropathy may be a novel bacterium with significant antigenic differences from the other Campylobacter species previously associated with the disease. Isoelectric focusing results suggested that Campylobacter like organisms in proliferate enteritis lesions possess a specific component of pI 4.5 (see in figure 4) with an antigenic site to that of the 25KD to 27KD (see figure 1) component detected in preparations in reducing gels. Therefore, it is likely that the components detected by the two methods represent the same structural component. Isoelectric focusing is a nondenaturing method, indicating that there is one major antigen and that the sodium dodecyl sulfate-polyacrylamide gel electrophoretic procedure denatures the antigen to 25-27kD. The absence of 25 to 27kD (PI 4.5) components in other *C. mucosalis*, *C. hyointestinalis*, *C. jejuni*, *C. coli* suggests that these organisms are antigenically different from known *C. mucosalis*, *C. hyointestinalis*, *C. jejuni*, *C. coli* and (see figure 4) and later studies recognized this Campylobacter-like organism as *L.intracellularis*.

The lower-molecular-weight OMP 25 KD to 27kD appears to be same as the claimed polypeptide comprising or consisting essentially of the amino acid sequence SEQ.ID.NO: 1. Therefore, 25 kD to 27kD protein is same as hemolysin polypeptide and thus read on the claimed invention. The isolated antigen migrating between 25kD- 27 kD on SDS-PAGE meet the limitations of the broadly claimed polypeptide as recited in claims 1-4, 6, 10, 11, 13, 14, and 17-21 and 23 (figure 1) because the disclosed 27kD antigen is from Lawsonia bacterium associated with proliferative enteropathy and in addition, such Campylobacter like organisms in proliferate enteritis lesions possess a specific component of pI 4.5 having 27kD protein and thus it reads on hemolysin (the broadly claimed having 251 amino acids is almost equivalent to

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27kD of the prior art since each amino acid molecular weight is 110 daltons) polypeptide as claimed .

Thus, the prior art 27kD protein isolated from *Lawsonia* from pigs that have necrotic lesions with proliferative enteropathy is the "hemolysin" polypeptide of the claimed invention, and thus read on claimed polypeptide comprising the amino acid sequence SEQ.ID.NO: 1 because the claimed polypeptide having 251 amino acids is almost equivalent to 27kD protein of the prior art since each amino acid molecular weight is 110 daltons. It appears that applicant has cloned the DNA of the known hemolysin 27kD protein.

Since the isolated polypeptide obtained from pigs that have necrotic lesions with proliferative enteropathy, the said polypeptide reads on "hemolysin" polypeptide and it also reads on immunogenic as the polypeptide binds to antisera raised against sonicated *Campylobacter*-like organism (*Lawsonia* spp) as shown in figure 2. In the absence of evidence to the contrary that the disclosed polypeptide is immunogenic and showed strong reactions. Antisera to other *Campylobacter* species isolates did not react with preparations of intracellular organisms.

When producing an isolated 25-27kD protein as discussed above, the composition would inherently have a carrier present, i.e., buffer for pharmaceutical use as required by claim 21. Therefore, the composition comprising an isolated 25-27kD protein in buffer read on vaccine composition of claims 21, and 23.

In the absence of evidence to the contrary the disclosed prior art composition and the claimed composition are the same. Since the Office does not have the facilities for examining and comparing applicants' claimed composition with the composition of the prior art, the burden is on applicant to show a novel or unobvious difference between the claimed composition and the composition of the prior art. It is acknowledged that weight is given to every term in claims.

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This is why the instant claims drawn to vaccine composition are scrutinized differently from a composition claim under 112, first paragraph. However, under prior art rejections, the term vaccine compositions must be weighed with the structural limitations of the claim. If the vaccine composition merely comprises a known composition, the term carries little weight absent evidence of structural difference. Of course, the existence of an unobvious structural difference would define over the prior art. Here, the prior art teaches the same composition as claimed. *In re Thorpe*, 227 U.S.P.Q. 964, 966 (Fed. Cir. 1985). *In re Marosi*, 218 U.S.P.Q. 289, 293-293 (C.A.F.C. 1983). *In re Best*, 195 U.S.P.Q. 430, 433 (C.C.P.A. 1977). *In re Brown*, 173 U.S.P.Q. 685, 688 (C.C.P.A. 1972).

#### **Remarks**

9. No claims are allowed.

#### **Conclusion**

10. Papers related to this application may be submitted to Group 1600, AU 1645 by facsimile transmission. Papers should be transmitted via the PTO Fax Center, which receives transmissions 24 hours a day and 7 days a week. The transmission of such papers by facsimile must conform to the notice published in the Official Gazette, 1096 OG 30, November 15, 1989. The RightFax number for submission of before-final amendments is (703) 872-9306. The RightFax number for submission of after-final amendments is (703) 872-9307.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Padma Baskar Ph.D., whose telephone number is ((571) 272-0853. A message may be left on the Examiner's voice mail system. The Examiner can normally be reached on Monday to Friday from 6.30 a.m. to 4.00 p.m. except First Friday of each bi-week.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynette Smith can be reached on (571) 272-0864. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PMR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PMR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PMR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Padma Baskar Ph.D.

  
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